

Roadside Memorial Policy to Improve Road Safety

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Introduction

Every year in Canada the lives of almost 3,000 motorists are claimed while traveling on our road network (Transport Canada, 2004). These fatalities are often received with great shock as road users by and large perceive driving to be a safe activity. As families mourn these losses, they often place memorials by the roadside to mark the spots where their loved ones died to warn others of potential dangers and to have an earthly connection with the deceased vehicle occupants (Clark and Cheshire, 2003). These deep feelings of loss are understandable, but at the same time road authorities have to decide if the benefits of the memorials by the roadside exceed the potential risks of driver distraction with further collisions resulting.

Road authorities often oppose memorials citing distraction as the main danger. Other factors often cited include memorial visitors stopping at the roadside and the increased awareness of the number of fatalities may lead some to question about what actions are being taken to improve the safety situation (Madigan, 2003). This heated and emotional debate is further aggravated by the fact that many of the reasons for not having memorials are in many cases judgements without basis on scientific evidence.

On all sides of this issue, the concept of roadside memorials either distracting or informing drivers of potential danger is raised over and over. Surprisingly, no studies were found in the literature directly evaluating the effect of roadside memorials on drivers, in terms of distraction, behaviour or collisions. Collins and Rhine (2003) informally corresponded with state departments of transportation; the result was a list of issues with no rankings or relative importance

discussed. Although the motivations and attitudes of those who place roadside memorials have been studied by Collins and Rhine (2003), little attention has been devoted to examining the attitudes and beliefs of road agencies and drivers.

Memorial policy is significant to road safety because the use of memorials helps grieving loved ones, and at the same time if employed correctly may also help the driving public understand the objective risk of driving and promote safer driving. Without a foundation in theory and evidence, however, future policy regarding roadside memorial use may not be optimum. On the one hand, it may endanger drivers if driver distraction is significant and memorials are allowed. On the other hand, it may reduce driver safety if they do slow drivers but are not permitted on the roadsides. By having a better understanding of the intent of policy and the behaviour of drivers adjacent to roadside memorials, a safer road system can be provided by the informed use of memorials. Although the intent of most memorial policies is often to improve road safety, without a good understanding of their effects, the memorials policy may inadvertently be reducing safety.

For this reason, the focus of this project will be to interview road agencies and drivers in Alberta to obtain a better understanding of drivers' perception and agencies views on memorials. The alignment of these views will result in a more effective policy with the aim of improving road safety. A summary of these views will be presented in the next two sections. Section 4 describes the methodology used in this study to gather the views and perceptions of both transport agencies and drivers. The results of the survey are discussed in section 5 while the final section provides some concluding remarks.

Views and policies of road agencies

Road agencies have the difficult task of balancing legislation, safety and road maintenance, and allowing the family and friends of road fatality victims to grieve. Because the subject is so emotional and controversial, there is no general consensus on what the best action to take is. As a result, each agency generally has its own policy.

Table 1 lists a sample of Canadian provincial policies regarding roadside memorial use they support (LAO, 2004). While the table of policies is by no means comprehensive, it illustrates the many approaches adopted when dealing with roadside memorial use and placement. It also reveals the difficulty road authorities face when establishing policy, or in some cases, the reluctance to establish a policy due to the highly emotional and controversial nature of the subject.

Table 1: Provincial policy regarding roadside memorials

Canadian Province	Roadside Memorial Policy
Alberta	Formal policy, not enforced
Manitoba	No formal policy, informally allow
New Brunswick	No formal policy, informally allow
Ontario	Provincial guidelines regarding sensitivity and safety
Prince Edward Island	No formal policy, informally allow

Collins and Rhine (2003) suggested, based on personal communications with state Departments of Transportation, that the main issues for road authorities are maintenance, safety, visual blight, and church-state conflicts. Although state DOTs were contacted the relative importance of these factors was not determined, nor were the specific policies and many were in the process of developing a policy. Through observation mowing operations within the road right of way and new construction projects were identified as maintenance issues creating both a hazard to workers and lost time to work around the memorials. Safety issues identified included rear end collision involvement of drivers stopping at a memorial, driver distraction and the potential of memorials being fixed objects. Finally, since the main structure of memorials is often a simple cross (Reid and Reid, 2001)

which is a religious symbol for some segments of the population, they may result in some state-church complications for policy makers.

Collins and Rhine (2003) discredited the distraction issue stating that drivers are more likely to be distracted by billboards than the memorials in their study since they were generally only about one to three feet tall and about one and a half feet wide. They also noted that from their site visits residents may be unaware of local memorials until the authors pointed them out, even in their vicinity. Visual blight was considered as an ongoing problem usually as the result of vandalism of memorials rather than the initial condition.

Views of driving public and grieving family or friends

Collins and Rhine (2003) conducted a survey of the bereaved to identify their purpose in placing the memorials. From the study, they found that the vast majority of memorials are placed for the young, with an average age of seventeen, whose deaths are considered unexpected, traumatic and unprecedented, and placed by those in their early thirties. These findings were confirmed in Australia by Ware (2004), who added that the reason for this focus on the young is the need to memorialize those who were lost suddenly and unexpectedly.

Collins and Rhine (2003) also found that the location of the death was more important than the memorial itself and that the purpose of the memorial was to mark the place which they now considered sacred as well as to keep the deceased's memory alive. Consistent with this finding, Reid and Reid (2001) stated that simply knowing that there was a memorial gave comfort to a mother of a collision victim although she had never visited the site. However, the respondents in Collins and Rhine (2003) study stated that their desire to return to the place where their loved ones expired or departed was the reason for the placement of the memorial. Warning of fellow motorists was found to be an afterthought, though in some cases perhaps a secondary rationale for justifying the placement of the memorial.

Despite the fact that all previous studies found crosses to be the predominant structure chosen for memorials, Collins and Rhine (2003) found that the expression of faith ranked low on the purposes

of memorial, indicating that the religious symbol that causes controversy is in most cases not a religious expression, but a culturally integrated part of the memorials. This finding supports the use of standard memorials which could potentially reduce religious conflicts.

The views of the travelling public are under represented in the literature, but an internet search revealed many returns of postings regarding memorials. Opinions voiced in these forums ranged from approval, that they make people think and slow down, to strong opposition, stating that the place for memorials is in a grave yard, that they are eyesores, and why do we memorialize those who drive dangerously and kill themselves? (Plastic, 2006) With the broad spectrum of views found in these posts, it is clear why policy makers may be reluctant to establish a policy in the absence of clear support.

Roadside Memorial Survey Methodology

To understand the intentions of the driving public, a questionnaire was developed to gather their views and perceptions on roadside memorials. The information collected will help agencies to develop memorial use strategies that are aligned with drivers' attitudes and improve road safety. Responses to the statements about roadside memorials are collected using the common Likert scale and coded using the standard "Strongly Disagree" = 1 and "Strongly Agree" = 5.

In addition to these perceptions, information on the respondents' gender and age were also collected. Finally, respondents' views on memorial policy were solicited. Note that the policies presented to both groups are the same, allowing for direct comparison of policy types. Similarly the most likely concerns of municipalities are present on both questionnaires to allow comparison of views between groups. Participation in the survey was strictly voluntary and the survey was approved by the Conjoint Faculties Research Ethics Board at the University of Calgary.

The driver questionnaires were administered between September 2006 and February 2007 to a total of 361 respondents. For convenience, most of the respondents were drawn from first year students in a local university. Although younger than the general

driving population, they are typically over represented in injury and fatality collisions and also are the people most often memorialized. All respondents were given the choice of not completing the questionnaire, but there were none who declined; this is likely due to the fact that it was a personal atmosphere and that this is a topic of interest to them. The drivers confirmed that they had not placed or added to memorials to ensure that the responses represented the general public.

Municipalities in Alberta were contacted by e-mail after compiling a list of all contacts from the municipal profiles maintained by Alberta Municipal Affairs. The initial email out was sent to 351 municipalities on September 29, 2006. Between the initial mail out and the first reminder 79 responses were received, 23 declining the questionnaire feeling their municipalities were too small. After the first reminder, the total responses increased to 150, with 82 completed questionnaires. The use of e-mail send out was efficient due to geographical separation and costs of printing and postage.

Respondent characteristics for the two questionnaires are presented in Figure 3. Note that the driver sample is a convenient sample that consists of mostly university students. For the agency survey, the response rate is 55% if we consider only those who have completed and declined. This is a very high response rate but it does not mean there is no self selection bias. Therefore, care should be exercised in generalizing the results although there is no reason to expect that their views will be biased.

Figure 1: Driver questionnaire

Roadside Memorials Survey

1. Which policy do you think we should have regarding roadside memorials? (please circle one)

- Officially allow roadside memorials (with little or no conditions)
- Allow only standardized roadside memorials
- Allow them only under special circumstances
- Have a strict no roadside memorial policy
- Unofficially allow roadside memorials (do not remove most of them)
- Unofficially disallow roadside memorials (discretely remove most of them)
- No policy on the issue

2. Do you agree or disagree with the following statements about roadside memorials?

		Strongly Disagree		Strongly Agree
a. I tend to ignore them while I am driving	1	2	3	4 5
b. They may reduce collisions in the area	1	2	3	4 5
c. They are a safety hazard	1	2	3	4 5
d. They warn drivers that this is a high collision area	1	2	3	4 5
e. They personalize the safety message	1	2	3	4 5
f. They make drivers think about their driving	1	2	3	4 5
g. They make me think about my driving	1	2	3	4 5
h. I feel sad when I see roadside memorials	1	2	3	4 5
i. They may distract drivers	1	2	3	4 5
j. They distract me while I am driving	1	2	3	4 5
k. They may reduce traffic speed in the area	1	2	3	4 5
l. I am likely to slow down when I see a roadside memorial	1	2	3	4 5
m. I find it easier to drive within the speed limit even if others are not	1	2	3	4 5
n. I feel tense and anxious when I see roadside memorials	1	2	3	4 5
o. They warn drivers that the road is unsafe	1	2	3	4 5
p. They give me the impression that the road is unsafe	1	2	3	4 5
q. They may encourage drivers to drive more cautiously	1	2	3	4 5
r. They encourage me to drive more cautiously	1	2	3	4 5
s. I find it easier to drive cautiously even if others are not	1	2	3	4 5
t. I feel agitated when I see roadside memorials	1	2	3	4 5
u. They increased my perceived likelihood of having a crash	1	2	3	4 5
v. They increased my perceived seriousness of having a crash	1	2	3	4 5
w. They may help spread the road safety message	1	2	3	4 5
x. They are an eye sore	1	2	3	4 5
y. I feel uncomfortable when I see roadside memorials	1	2	3	4 5
z. They make me think about my loved ones while driving	1	2	3	4 5
• They help people grieve their loved ones	1	2	3	4 5
• People should grieve privately and not impose on others	1	2	3	4 5

3. Gender: Male Female

4. Age: 16-25 26-35 36-45 46-55 56-65 Above 65

Thank you for your participation!

Figure 2: Municipal questionnaire

Roadside Memorials Survey

1. What is the policy of your department regarding roadside memorials? (please circle one)

- a. Officially allow roadside memorials (with little or no conditions)
- b. Allow only standardized roadside memorials
- c. Allow only under special circumstances
- d. Have a strict no roadside memorial policy
- e. Unofficially allow roadside memorials (do not remove most of them)
- f. Unofficially disallow roadside memorials (discretely remove most of them)
- g. No policy on the issue

2. How important are the following reasons in deciding the current policy on roadside memorials in your department?

	Not at All Important	1	2	3	4	5	Very Important
a. They may help people grieve their loved ones	1	2	3	4	5		
b. They may encourage drivers to drive more cautiously	1	2	3	4	5		
c. They may be a potential source of revenue	1	2	3	4	5		
d. They may reflect poorly on the department	1	2	3	4	5		
e. They may help spread the road safety message	1	2	3	4	5		
f. They may reduce collisions in the area	1	2	3	4	5		
g. They may be an eye sore	1	2	3	4	5		
h. They may distract drivers	1	2	3	4	5		
i. They may be a safety hazard	1	2	3	4	5		
j. They may reduce traffic speed in the area	1	2	3	4	5		
k. They may create public relations or political issues	1	2	3	4	5		
l. They may create religious or cultural issues	1	2	3	4	5		
m. They may create concerns about maintenance issues	1	2	3	4	5		
n. They may create concerns about legal or liability issues	1	2	3	4	5		
o. They may give the impression that the roads are unsafe	1	2	3	4	5		

3. Do you agree or disagree with the following statements about roadside memorials?

	Strongly Disagree	1	2	3	4	5	Strongly Agree
a. They may help people grieve their loved ones	1	2	3	4	5		
b. They may distract drivers	1	2	3	4	5		
c. They may reduce traffic speed in the area	1	2	3	4	5		
d. They may reduce collisions in the area	1	2	3	4	5		
e. They may give the impression that the road is unsafe	1	2	3	4	5		
f. They may encourage drivers to drive more cautiously	1	2	3	4	5		
g. They may reflect poorly on the department	1	2	3	4	5		
h. They may help spread the road safety message	1	2	3	4	5		
i. They may be an eye sore	1	2	3	4	5		

4. Gender: Male Female

5. Age: 16-25 26-35 36-45 46-55 56-65 Above 65

Thank you for your participation!

Discussion of Results

The first question on both questionnaires is which policy municipalities have or which drivers think is best. Municipalities in Alberta largely have no policy (n=73) but one municipality reported allowing standard memorials, one reported allowing under special circumstances, five unofficially allow memorials and two unofficially disallow memorials. The views of drivers regarding policy choice show a larger variation of accepted policies. The policy preferences for the two questionnaires are presented in Figure 4.

The tally and statistical results of question 2 responses on the driver questionnaire are presented in Table 2 while the tally and statistical results of question 2 and 3 responses on the municipal questionnaire are presented in Table 3. Many respondents did not respond to question 2 as it refers to the current policy and many reported not having a policy.

The responses to the question of policy illustrate the diverse views the public holds and this variation in opinions may dissuade municipalities from establishing a policy. Of note in the responses of drivers is that the strict no roadside memorial policy is preferred over the unofficially allow policy. While the results are not surprising, not many people are in support of removing memorials, it is surprising that there were two municipalities that have this policy. Drivers preferred standardized memorials with officially allowing them as a close second choice. Overall, driver support for the use of memorials is positive. Hence, if memorials are proven to improve safety they should be well received by drivers.

Figure 3: Respondent characteristics

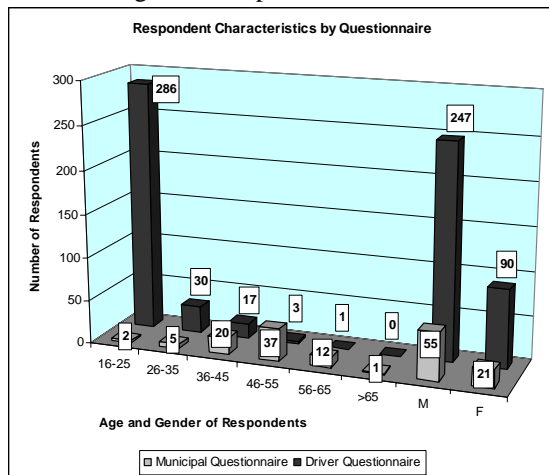


Figure 4: Reported policy or policy preference

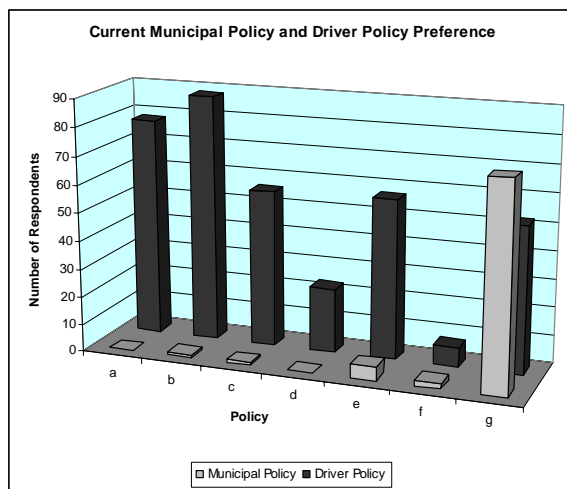


Table 1: Driver responses and statistics

Question	Number of responses					Statistics		
	1	2	3	4	5	Mode	Average	Std. Dev.
	S Disagree	Neutral		S Agree				
2 a	23	118	122	76	22	3	2.88	1.01
b	58	122	92	70	19	2	2.64	1.12
c	64	114	108	65	10	2	2.57	1.06
d	41	84	92	111	33	4	3.03	1.17
e	13	67	84	135	62	4	3.46	1.09
f	23	69	109	119	41	4	3.24	1.08
g	50	73	81	102	55	4	3.11	1.28
h	33	52	103	126	47	4	3.28	1.14
i	10	67	90	141	53	4	3.44	1.04
j	69	109	93	68	22	2	2.63	1.17
k	40	107	111	84	19	3	2.82	1.07
l	54	141	84	69	13	2	2.57	1.07
m	60	107	110	61	23	3	2.67	1.13
n	127	129	71	29	5	2	2.05	1.00
o	55	128	100	69	9	2	2.58	1.04
p	66	136	99	51	9	2	2.45	1.02
q	18	76	108	134	25	4	3.20	1.01
r	38	89	112	98	24	3	2.95	1.10
s	22	73	139	101	26	3	3.10	1.00
t	129	124	77	27	4	1	2.04	0.99
u	76	117	94	58	16	2	2.50	1.12
v	65	80	105	91	20	3	2.78	1.17
w	26	53	128	117	37	3	3.24	1.06
x	140	103	80	30	8	1	2.07	1.07
y	99	139	85	29	9	2	2.20	1.01
z	60	105	115	64	17	3	2.65	1.10
Help Grieve	20	25	89	138	89	4	3.70	1.09
Grieve Privately	76	116	119	34	16	3	2.44	1.06

Table 2: Municipality responses and statistics

Question	Number of responses					Statistics			
	1	2	3	4	5	Mode	Average	Std. Dev.	N
2 a	8	6	23	15	2	3	2.94	1.07	54
b	7	8	17	14	8	3	3.15	1.23	54
c	42	5	4	0	3	1	1.46	1.04	54
d	28	7	12	3	4	1	2.04	1.29	54
e	11	6	16	14	7	3	3.00	1.32	54
f	12	7	18	11	6	3	2.85	1.29	54
g	8	8	17	11	10	3	3.13	1.30	54
h	3	3	12	16	21	5	3.89	1.15	55
i	3	7	14	16	14	4	3.57	1.18	54
j	8	10	22	7	7	3	2.91	1.20	54
k	7	14	16	13	4	3	2.87	1.15	54
l	17	14	10	9	4	1	2.43	1.30	54
m	5	7	13	19	10	4	3.41	1.21	54
n	7	4	18	10	15	3	3.41	1.32	54
o	12	10	18	10	4	3	2.70	1.22	54
3 a	3	7	29	25	15	3	3.53	1.02	79
b	1	7	23	24	24	4	3.80	1.02	79
c	14	23	29	11	2	3	2.54	1.02	79
d	18	24	28	7	2	3	2.38	1.02	79
e	9	27	26	14	3	2	2.68	1.02	79
f	18	11	28	18	4	3	2.73	1.20	79
g	31	32	10	4	2	2	1.91	0.98	79
h	13	14	31	13	8	3	2.86	1.18	79
i	11	10	27	18	13	3	3.15	1.25	79

Drivers were also asked about their attitudes and reactions to roadside memorial with respect to their own driving. There were 26 drivers who reported that memorials were important or very important in influencing their choice of speed (question 2d, 2k & 2l). This result suggests that the presence of a memorial is likely to reduce the speed of 7% of drivers. Similarly using questions 2p, 2q and 2s, there were 29 drivers, or 8%, who are expected to drive more cautiously in response to a memorial. To address the issue of distraction, questions 2n, 2i, and 2t were used to represent a negative case where the driver is tense or agitated. Of the 361 respondents, there were 11 whose responses indicate that they will be distracted by the memorial. Municipalities strongly agreed that the presence of memorials distract drivers (mean=3.89), while drivers reported not

being distracted (mean=2.63) and thinking about their driving (mean=3.24) indicating a positive distraction.

The question of memorials being an eyesore was relatively neutral (mean=3.17) from municipalities with a relatively large standard deviation, while drivers (mean=2.07) disagreed that they are an eyesore, with the mode response that drivers strongly disagreed. The grieving process was mildly acknowledged by municipalities (mean=3.53) while drivers gave the memorials more credit for this purpose (mean=3.70) and disagreed that people should grieve privately.

The perceived safety of the road was viewed differently by the two groups, drivers agreeing (mean=3.2, mode=4) that they perceived the road to be less safe while municipalities disagreed with this statement (mean=2.68). In safety terms, risk compensation discussed by Peltzman (1975), the perception of drivers that the road is unsafe can be positive as drivers will drive safer to maintain their comfortable perceived level of risk.

Concluding Remarks

This project is significant to road safety because the use of memorials helps grieving loved ones, and at the same time, if employed correctly, may also help the driving public understand the objective risk of driving and promote safer driving. Without a foundation in theory and evidence, however, future policy regarding memorial use may endanger drivers in the case where distraction is evident and memorials are present, or may be reducing driver safety in the case where they slow drivers but are not present.

Roadside memorials are now a common sight along our streets and highways, but without a scientific understanding of the effects of these features we may be inadvertently reducing the level of safety provided to road users. By understanding the foundation of driver beliefs, the use of memorials can be modified to carry the greatest weight with the intended audience.

The objective of this investigation was to explore policy preferences and the effect of memorials on driver behaviour and the following was found:

- Memorials likely to slow some drivers
- Memorials likely to make some drivers more cautious
- Memorials may distract some drivers
- Drivers prefer policy supporting memorial use

Overall, drivers appeared to support roadside memorials and reported more positive influences than negative effects.

One of the limitations of this study is that of the reliance on self reported attitudes and behaviours which are not necessarily representative of actual behaviour. In addition, Canadians are known to be more accommodating and understanding of others and thus these findings may not hold in other jurisdictions. Future research using actual traffic behaviors and collision patterns in response to roadside memorials will improve our understanding of how they affect road safety. The continued application of statistical methods to the relevant data is the key to expanding the understanding of these controversial and political road features.

Acknowledgement

Support from the Natural Sciences and Engineering Research Council of Canada, OPUS Hamilton, the Alberta Motor Association and the Centre for Transportation Engineering and Planning are gratefully acknowledged but the views expressed by the authors do not necessarily reflect those of the organizations.

References

- Ajzen I & Madden T (1986) Prediction of Goal-Directed Behaviour: Attitudes, Intentions, and perceived Behavioural Control, *Journal of Experimental Social Psychology*, 22, 453-474
- Clarke J & Cheshire A (2004) RIP by the roadside: a comparative study of roadside memorials in New South Wales, Australia, and Texas, United States, *Omega*, 48, 203-222
- Collins C & Rhine C (2003) *Roadside memorials*, *Omega*, 47, 221-244
- LAO (2004) *Legislative Assembly of Ontario, Thursday April 15 2004*, accessed 02/11/2006 [online] on 02/11/2006, http://www.ontla.on.ca/hansard/house_debates/38_parl/Session1/L032.htm#P306_99147
- Madigan E (2003) *Safety concerns fail to curb roadside memorials*, accessed 01/29/2006 [online] <http://www.stateline.org/live/ViewPage.action?siteNodeId=136&languageId=1&contentId=15276>
- McDermid D (2004) *Saving Lives on Alberta's Roads*, Alberta Transportation
- Peltzman S (1975) The effects of Automobile Safety Regulation, *Journal of Political Economy*, 83, 677-726
- Plastic (2006) *Another Roadside Distraction*, Accessed 01/27/2006 [online], <http://www.plastic.com/article.html;sid=04/10/11/00262202>
- Reid K & Reid C (2001) A cross marks the spot: a study of roadside death memorials in Texas and Oklahoma, *Death Studies*, 25, 341-356
- Transport Canada (2004) *Vision 2010*, Ottawa: Transport Canada
- Ware S (2004) Contemporary Anti-Memorials and National Identity in the Victorian Landscape, *Journal of Australian Studies*, 81, 121-133